

RESEARCH SUMMARY

Management of hypodontia

Survival of resin-bonded bridgework provided for post-orthodontic hypodontia patients with missing maxillary lateral incisors **M. J. Garnett, R. W. Wassell, N. J. Jepson and F. S. Nohl** *Br Dent J* 2006; 201: 527-534

Objective

To analyse the clinical performance and factors influencing the survival of resin-bonded bridgework provided for hypodontia patients with missing maxillary lateral incisors, following orthodontic treatment to open, maintain or redistribute the missing tooth space.

Design

A retrospective analysis of patients treated at a single centre using case notes with all patients invited for review to corroborate findings.

Setting

Departments of Orthodontics, Child Dental Health and Restorative Dentistry, Newcastle upon Tyne Dental Hospital and School.

Subjects and methods

Between 1989-2000, 59 suitable hypodontia patients were identified of whom 45 had complete records. For these patients 73 resin-bonded bridges (RBBs) were provided. Following invitation, 24 patients attended for a review appointment. The survival of the RBBs, grade of operator providing treatment, duration of post-orthodontic retention, the influence of design, presence of pontic contact in static and dynamic excursions, and the effect of habits were assessed. Life table, Kaplan-Meier and Cox regression analysis were carried out for the 73 RBBs with complete records. A separate analysis of the RBBs provided for patients who attended for the invited review did not show a higher failure rate than those patients who did not attend. Therefore both sets of data were combined.

Results

Of the 73 RBBs provided, 30 had debonded on at least one occasion (41.1%), six of these debonds were due to trauma (20%). The mean survival time of all the restorations was 59.3 months, with a median survival time of 59 months. Senior members of staff (Consultant, Senior Lecturer or Specialist Trainee) provided most restorations ($n = 39$) and achieved the highest mean survival of 72.6 months and median survival time of 100+ months. RBBs provided by junior staff and students had significantly lower survival times ($p < 0.05$) compared with senior staff. Risk of failure was 3.9 times greater with junior staff and 2.5 times greater with students ($p = 0.01$ and $p = 0.02$, respectively). Analysis of all the other factors investigated showed no statistical difference in survival times or in hazard ratios. Analysis of fixed/fixed versus cantilevered bridges was limited by the number of fixed/fixed bridges ($n = 11$), and only two cantilevered bridges with multiple abutments were provided; both failed within one month.

Conclusion

RBBs provided for post-orthodontic hypodontia patients with missing maxillary lateral incisors can for many patients be an acceptable and definitive restoration. Experienced staff achieved the best results, but why this should be was not explained by the individual factors analysed in this study.

COMMENT

The specialist management of hypodontia patients via multidisciplinary teams has become an important aspect of day to day clinical activity within dental teaching hospitals in the UK. The experienced team at Newcastle Dental Hospital are well respected with regard to the quality of specialist treatment delivered to this patient group.

This limited but important retrospective study has attempted to assess the survival time of resin-bonded bridges (RBBs) constructed to replace missing lateral incisor teeth following post-orthodontic opening or redistribution of space. The number of RBBs assessed in this study is relatively small ($n = 73$) and as a consequence statistically significant differences between various clinical parameters and bridge design variables have been difficult to determine. Nevertheless the study did demonstrate a general RBB median survival time of 59 months with no apparent differences between cantilever versus fixed/fixed designs and clinical variables such as the presence or absence of parafunctional activity.

As reflected in a number of clinical studies of this type, it would appear that the experience of the operator has a statistically significant influence in determining survival times. As expected, the results achieved by senior members of staff were better than junior members of staff (mean survival time 72.6 months versus 49.5 months). This difference in results would suggest a somewhat technique-sensitive clinical process associated with RBBs although there is always the possibility that senior members of staff were treating the easier cases!

Of the remaining questions to be answered from the aims of this study, it appeared that there was no significant difference in RBB survival time when post-orthodontic retention times differed between three to five months and those over six months. Unfortunately the other question of interest not answered in this study is the effect of short post-orthodontic retention times (< 1 month) on RBB survival times.

In conclusion this study confirmed the important role of RBBs in managing patients with hypodontia. The conservative nature of RBBs allows the opportunity for young adults to move into fixed prostheses sooner than they might otherwise, particularly if waiting for growth cessation prior to the possible provision of dental implant supported crowns. I congratulate the Newcastle Dental Hospital team for their valuable contribution to this important area of specialist clinical practice.

P. A. King, Consultant in Restorative Dentistry, Bristol Dental Hospital and School

DOI: 10.1038/sj.bdj.4814169

IN BRIEF

- Identifies factors affecting performance and survival of resin-bonded bridges provided for hypodontia patients.
- Outlines appropriate statistical analysis for a retrospective study of this nature.
- Highlights the interdisciplinary management of hypodontia patients.